

## TENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2211589/EJH	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/AU 99/00993</b>	International filing date ( <i>day/month/year</i> ) 10 November 1999	(Earliest) Priority Date ( <i>day/month/year</i> ) 11 November 1998
Applicant North Western Health Care Network et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☒ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract, ☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

☒ None of the figures

**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl<sup>6</sup>: C12N 15/00; A61K 39/12

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

SEE BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SEE BELOW

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit (WPAT): surface antigen and Hepatitis B; STN (dgene): claim 3 (Formula 1); Genbank: Formula 1, II and III

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, Y	J General Virology (1993) 74, pp1341-1348. Norder et al "Genetic relatedness of hepatitis B viral strains of diverse geographical origin and natural variations in the primary structure of the surface antigen". Page 1341, 1342	1-17
X	J Medical Virology (1995) 45, pp 247-252. Uchida et al "Complete Nucleotide Sequences and the Characteristics of Two Hepatitis B virus Mutants Causing Serologically Negative acute or Chronic Hepatitis B ". page 247, 248	5
X	Virology (1990) 176, pp596-603. Tong et al "Active Hepatitis B Virus Replication in the Presence of anti-HBe Is associated with viral variants containing an inactive pre-C region". Page 596	5



Further documents are listed in the continuation of Box C



See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

04 January 2000

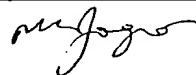
Date of mailing of the international search report

10 JAN 2000

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	J General Virology (1988) 69, pp2575-2583 Okamoto et al "Typing Hepatitis B Virus by homology in nucleotide sequence: comparison of surface antigen subtypes" . Page 2575	5
X,Y	Vaccine (1998) 16, pp170-173. Jian-Wen He et al "Mutations in the "a" determinant of hepatitis B surface antigen among Chinese infants receiving active postexposure hepatitis B immunization" See whole document	1-17
X	J General Virology (1985) 66, pp195-200 Takeshima et al. "Structural analysis of the gene coding for hepatitis B virus surface antigen and its product' Page 195	5
X,Y	J of Hepatology (1996) 25, pp787-794. Asahina et al "Sequential changes in full-length genomes of hepatitis B virus accompanying acute exacerbation of chronic hepatitis B" page 789-790; 792-793	1-17
P,X	J Medical Virology (1999) 58, pp 346-352. Karthigesu et al "A Hepatitis B Virus variant found in the sera of immunised children induces a conformational change in the HBsAg 'a' determinant" Whole document	1-17
X,Y	J Virology (1998) 72, pp7692-7696 . Grethe et al "Characterization of unusual escape variants of Hepatitis B virus isolated from a hepatitis B surface antigen-negative subject" Whole document	1-17
X,Y	WO 9828004 (The Crown in the right of the Queensland Department of Health et al) 02 July 1998. Whole document	1-17
X	WO 9412617 (International Biotechnology Laboratories, Inc et al) 09 June 1994. Pages 9, 23	1-17
P,X	WO 9941383 (Maxygen Inc, et al) 19 August 1999	1-17
X	WO 9700698 (The General Hospital Corporation et al) 09 January 1997	1-17
X	WO 9426904 (Abbott Laboratories et al) 24 November 1994	1-17

# WOINTERNATIONAL SEARCH REPORT

## Information on patent family members

International application No.  
PCT/AU 99/00993

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9828004	AU	78716/98				
WO	9412617	AU	56793/94				
WO	9941383	AU	26741/99	AU	26742/99	AU	32891/99
		AU	32910/99				
WO	9700698	AU	62844/96	CA	2224477	EP	833668
WO	9426904	AU	69082/94	CA	2162132	EP	745128
		US	5595739	US	5591440		
							END OF ANNEX